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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,185	12/16/2004	Akihiko Matsuoka	MAT-8579US	5599
23122 7590 05/07/2007 RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980			EXAMINER CHEN, JUNPENG	
			ART UNIT 2618	PAPER NUMBER
			MAIL DATE 05/07/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/518,185	<b>Applicant(s)</b> MATSUOKA, ET AL.	
	<b>Examiner</b> Junpeng Chen	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 17 is/are rejected.
- 7) ☒ Claim(s) 2-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This action is in response to applicant's arguments/amendment filed on 02/16/2007. Claim 17 is added by Applicant. Currently, claims 1-17 are pending.

#### ***Response to Arguments***

1. Applicant's arguments, see pages 9-12, filed 02/16/2007, with respect to the rejection(s) of independent claim 1 under 35 U.S.C. 103(a) have been fully considered and are persuasive.

Specifically, prior art admission by Applicant in view of Nagasaka fails to disclose "a phase-amplitude control section for controlling a phase and an amplitude of at least one of the 1) feedback signal... and 2) a reference signal based on the input orthogonal base-band signal".

Therefore, the art rejection in the previous Office Action has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1 and 17** are rejected under 35 U.S.C. 102(b) as being anticipated by Kubo et al. (U.S. 2001/0051504 A1).

Consider claim 1, Kubo discloses a transmission device comprising:

a non-linear distortion compensating section for compensating non-linear distortion of an input orthogonal base-band signal that is digitally modulated to form a distortion compensated signal by using non-linear distortion compensating data (*read as the modulation signal outputted from modulation unit 20 and the output of distortion compensating table 37 are inputted to a multiplier 21, and multiplier 21 outputs a signal, Figure 2, paragraph [0038]*);

a first orthogonal modulator for orthogonally modulating the distortion compensated signal received from the non-linear distortion compensating section (*read as the output of multiplier 21 is QPSK-modulated by QMOD, Figure 2, paragraph [0039]*);

a modulation signal distributor for distributing a feedback signal formed by amplifying the distortion compensated signal orthogonally modulated by the first orthogonal modulator (*read as the output of the PA 25 is fed back by an inherently existing modulation signal distributor, Figure 2, paragraph [0040]*);

a phase/amplitude control section for controlling a phase and amplitude of at least one of 1) the feedback signal distributed by the modulation signal distributor and 2) a reference signal based on the input orthogonal base-band signal (*read as variable attenuator (VATT) 30 attenuates the power of the feedback and variable delayer 33 adjusts the delay amount of the modulation signal, Figure 2, paragraphs [0040]-[0041]*);

a signal combiner for generating a combinatory signal based on the feedback signal and the reference signal, at least one of the feedback signal and the reference signal that are provided to the signal combiner being phase and amplitude controlled by

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the phase/amplitude control section (*read as the output of modulation unit 20 and the output of variable delayer 33 are inputted into the subtracter 35, and subtracter 35 produces a signal, where the output of variable delayer 33 is passes through VATT30 and variable delayer 33, Figure 2, paragraph [0040]-[0041]*); and

an updating section for updating the non-linear distortion compensating data based on the input orthogonal base-band signal and the combinatory signal provided by the signal combiner, the combinatory signal being analog-digital converter prior to being received by the updating section (*read as the distortion compensation signal update unit 36 updates the distortion compensation table 37 based on the output of subtracter 35 (the output of subtractor is digital due to its digital inputs) and the output of modulation unit 20 (interpreted as the distortion compensation table uses the output of modulation unit 20 to generate a value, and this value is inputted into the distortion compensation signal update unit 36, therefore, the output of distortion compensation signal update unit 36 is based on the output of modulation unit 20 as well), Figures 1 and 2, paragraphs [0035], [0038] and [0042]*).

Consider claim 17, as applied to claim 1 above, Kubo discloses comprising a reference table for storing the non-linear distortion compensating data (*read as distortion compensation table 37, Figure 2*), wherein the updating section includes a reference table updating section for updating the reference table (*read as the distortion compensation signal update unit 36 inherently comprises a table updating sections that updates the distortion compensation table 37, Figures 1 and 2, paragraph [0042]*).

***Allowable Subject Matter***

3. Claims 2-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Consider **claims 2-7**, the best prior art of record found during examination of the present application, Kubo et al. (U.S. 2001/0051504 A1), discloses the claimed invention above but fails to disclose a demodulated signal obtained by an orthogonal demodulator which one of 1) orthogonally demodulates the analog-digital converted combinatory signal 2) provides the combinatory signal with analog-digital conversion and orthogonally demodulates the combinatory signal.

Therefore, claims 2-7 of the present application are considered novel and non-obvious over the prior art and, consequently, are allowed.

Consider **claims 8-13**, claims 8-13 are allowed for the same reason as claims 2-7.

Consider **claims 14-15**, claims 14-15 are allowed for the same reason as claims 2-7.

Consider **claim 16**, the best prior art of record found during examination of the present application, Kubo et al. (U.S. 2001/0051504 A1), discloses the claimed invention above but fails to disclose wherein the feedback signal is orthogonally demodulated and the signal combiner combines the orthogonally demodulated feedback signal and the reference signal into the combinatory signal.

Therefore, claim 16 of the present application is considered novel and non-obvious over the prior art and, consequently, is allowed.

### **Conclusion**

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kubo, Tokuro et al.	US 20020097811 A1	Transmission device and transmission method
Matsuoka, Akihiko	US 20020025790 A1	Linear compensated amplifying equipment
MATSUOKA, AKIHIKO et al.	US 20020064236 A1	TRANSMISSION APPARATUS
Matsuoka; Akihiko et al.	US 6400774 B1	Nonlinearity-caused distortion compensating system
Matsuoka; Akihiko et al.	US 6418173 B1	Transmission Apparatus
Moriyama; Yukihiro et al.	US 6091941 A	Radio apparatus
Nagatani, Kazuo et al.	US 20010005402 A1	Distortion compensating apparatus
Ode; Takayoshi et al.	US 7012969 B2	Distortion compensating apparatus
Rha; Peter S.	US 6188732 B1	Digital feedforward amplifier for use in an RF transmitter and method of operation

4. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

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Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junpeng Chen whose telephone number is (571) 270-1112. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Junpeng Chen  
J.C./jc

EDAN ORGAD  
PRIMARY PATENT EXAMINER

*Edan Orgad 4/28/07*